SUN W. CHUN

Sun W. Chun joined the Washington, D.C. office of the Department of Energy as the Senior Executive Advisor to the Assistant Secretary for Fossil Energy in December 1996. As such, he has the responsibility of a wide range of duties including advancing the deployment of U.S.-developed fossil energy technologies to domestic and international markets. Dr. Chun will develop a joint strategy with U.S. industry and other government agencies to capitalize on the U.S. investment in clean coal technologies.

Dr. Chun served as the Director of the U.S. Department of Energy's Pittsburgh Energy Technology Center (PETC) from 1979 to 1996. He directed the Department's research and development efforts in coal programs including: Coal Preparation, Alternative Fuels, Advanced Combustion, Flue Gas Cleanup, Coal Liquefaction, Magnetohydrodynamics and other advanced technologies. He also oversaw the Center's role in the Synthetic Fuels Program and Clean Coal Technology Program, and implemented joint research programs with the Department of Defense. During his tenure as the Director, he initiated minority programs for Historically Black Colleges and Universities and many international cooperative programs.

Dr. Chun has also served as PETC's Deputy Director and Director of its Process Sciences Division. Before joining the Center in 1975, he held management positions with the Gulf Research and Development Company, managing research in coal and hydrocarbon process technology.

Dr. Chun's management training includes completion of Gulf's five-year executive training program, the Department's two-year Executive Development Program, the Federal Executive Institute, the Systems Management College of the U.S. Armed Forces, and the Harvard University National Security Program.

He is a member of the American Institute of Chemical Engineers, the American Chemical Society, the American Management Association, the American Association for the Advancement of Science, Sigma Xi, and the Pittsburgh Federal Executive Board.

Honors received by Dr. Chun include:

- 1981 the Benjamin G. Lamme Award for outstanding service from the Ohio State University, the highest honor from the College of Engineering.
- 1983 Diamond Jubilee Award for Outstanding Service from the American Institute of Chemical Engineers in celebration for its 75th anniversary.

- 1987 Whitehouse Recognition for creating the first Energy Program for Historically Black Colleges and Universities.
- 1988 Leadership Award from the Pittsburgh Coal Conference.
- 1991 Presidential Meritorious Executive Rank Award from President George Bush in recognition of his accomplishments.
- 1992 Award for Innovation in Coal Conversion from the Pittsburgh Coal Conference
- 1994 "Coal Man of the Year" award from the Washington Coal Club.
- April 1996 received one of the highest national honors given by the government of Korea, the Moran-Jang medal, in recognition of the instrumental role he has played in developing the cooperation between the United States and Korea in energy and environmentally related technologies.
- 1996 Presidential Meritorious Executive Rank Award from President Bill Clinton in recognition of his accomplishments.
- 1997 Gold Medal from Secretary Hazel R. O'Leary.
- 1997 Pittsburgh Federal Executive Board changed the name of the "Outstanding Asian-American Students Award" to the "Dr. Sun W. Chun Award" for his contribution in creating such a program in the Greater Pittsburgh area.
- 1997 Elected to the Chairman's position of the Clean Fossil Energy Expert Group for Asia Pacific Economic Cooperation.
- 1998 Appointed to position as Consultant Professor at Zhejiang University at Hangzhou in the People's Republic of China.

Dr. Chun also has many patents and numerous publications in petroleum refining and coal technology to his credit. He has served as the Chairman of the Combined Federal Campaign for the Greater Pittsburgh area, and developed the Outstanding Asian Students Recognition Program.

Dr. Chun received his B.Ch.E, M.S., and Ph.D. degrees in Chemical Engineering from the Ohio State University. He and his wife, InMook, have two children, Felicia and Edward.

JOHN KARAS

Manager
Coal Industries Section
Energy Minerals Branch
Coal and Mineral Industries Division
Department of Industry Science and Resources, Australia

Mr Karas joined the Australian Public Service in 1980 having completed an honours degree in economics at the University of Western Australia. His first appointment was to the Australian Treasury where he worked on economic and financial issues associated with Australia's international aid program.

In 1983 he moved to the mineral resources area of the former Department of Primary Industries and Energy. In the period to 1990 he provided economic and policy advice on a range of resource industries including diamonds, base metals, aluminium and uranium.

He took up a position in the Department's central policy area in 1990 where he participated in the formulation of a national sustainable development strategy leading up to the first UN Conference on the Environment.

Since mid 1992, apart from a short period in the greenhouse policy unit, he has been working in the coal policy area of the Department. This area, together with other energy and resource functions, moved to the Department of Industry Science and Resources in 1999.

Mr Karas' work on coal has involved the full range of domestic and international issues associated with providing coal and energy policy advice to the Australian Government. He has been closely involved in the development of APEC coal activities and the strengthening of bilateral cooperation on coal between Australia and many countries throughout the region.

Mr Karas is married and has two school age children. His interests include gardening, wood working and photography.

NOEL JOHN SLIGAR

B.E.(Chem.), M.Eng.Sc., Ph.D, D.E.(Hon.), FTSE, F.I.Chem.E., F.I.E.Aust., F.A.I.E., FAICDdipl., Eur.Ing., C.Eng.

Director Sligar and Associates

Qualifications

Bachelor of Engineering (Chem) (1954), University of Sydney
Management Certificate (1964), Sydney Technical College
Master of Engineering Science (1972), University of Newcastle
Doctor of Philosophy in Chemical Engineering (1976), University of Newcastle
Doctor of Engineering (1994), hon., University of Newcastle
Australian Institute of Company Directors, Diploma (1995)

Network

Australian Academy of Technological Science and Engineering, Member Australian Institute of Energy, Fellow
Australian Institute of Company Directors, Fellow
Combustion Institute, USA, Member
Engineering Council, London, Member
Federation Europeene d'Associations Nationales d'Ingenieurs, Member
Institution of Chemical Engineers, London, Fellow
Institution of Engineers, Australia, Fellow
Society for Mining Metallurgy and Exploration, USA, Member

Activities

APEC Expert Group on Clean Fossil Energy, committee member. Institution of Engineers, Australia, National Committee on Fuel and Energy, Deputy Chairman.

Sydney 2000 Olympic Energy Panel, member.

Dr Sligar is the Director of Sligar and Associates, a consulting group specializing in the future competitive direction of the energy industry and the technological initiatives to achieve change. This has involved consulting services to utilities, to those providing goods and services to utilities, reviewing Australia's energy needs, overseas aid and potential joint research projects. Countries involved include Japan, South East Asia and the USA. He was previously Chief Scientist of Pacific Power, then the largest electric utility in Australia.

Publications

More than 50 papers on competitive change in the power industry, coal technology, technology development and education and training staff for the industry.

RON KNAPP

Chief Executive World Coal Institute, London

Ron Knapp is Chief Executive of the World Coal Institute, a non-profit, non-governmental association of coal producing and coal consuming enterprises.

The World Coal Institute has Category II Consultative Status with the United Nations Economic and Social Council and Consultative Status with the United Nations Industrial Development Organisation.

The principal objective of the World Coal Institute is to promote the merits of coal by:

- providing a "voice" for coal in international debates on energy and the environment:
- improving awareness of the importance of coal as the single largest source of fuel for the generation of electricity;
- widening the understanding of the vital role that metallurgical coal fulfils in the worldwide production of steel on which all industry depends;
- disseminating information on the advances in modern clean coal technology and methods leading to improved efficiency and environmental performance in mining, preparation, transportation and use of coal;
- highlighting the long term dependence on coal to meet world energy demand.

Ron is an economist with experience in both government and private sectors. Prior to his January 1997 appointment to the World Coal Institute, Ron was Deputy Director of the Minerals Council of Australia, where he worked from 1987 covering market access, industry policy and international trade issues.

A 17-year career (1969–1986) with the Australian Government included Finance, Transport and economics agencies – and an interchange period with CRA Limited (now Rio Tinto).

Ron is a member of the Institute of Directors (United Kingdom) and he retains a farming interest in his native Australia.

DR. GUILLERMO R. BALCE

Executive Director ASEAN Centre for Energy (ACE)

Dr. Guillermo R. Balce is the first Executive Director of the ASEAN Centre for Energy (ACE), with a term of five years beginning at ACE's establishment date on 1 January 1999.

Formerly, he was Assistant Secretary for Operation of the Department of Energy of the Philippines. He was headquartered in Bangkok in 1989-1992 as Director of the Technical Secretariat of the Committee for Coordination of Prospecting for Mineral Resources in Asia Offshore Areas (CCOP), an intergovernmental organization established from an international cooperation programme under the UN Economic and Social Commission for Asia and the Pacific (ESCAP). From 1987 to 1989, he was Director of Mines and Geosciences of the Philippine Department of Environment and Natural Resources (DENR).

Before reaching the top management level of governmental intergovernmental institutions on mining and energy, Dr. Balce had 26 years of career service in the Philippine Government. He started in 1961 as Junior Geologist involved in hydroelectric dam foundation surveys at the National Power Corporation. In 1962, he transferred to the Bureau of Mines and Geosciences where he rose through the ranks from Geologist to Chief Geologist. At the start of the new Philippine government in 1986, he was appointed as Assistant Director of the reorganized Mines and Geosciences Bureau at the DENR. Besides his career as geologist, Dr. Balce also served in various capacities in government such as: Director of Mines Research, Philippine Council for Agriculture and Resources Research and Development (PCARRD); Examiner, Board of Geology Professional Regulations Commission: Chairman Division XII (Earth Sciences) of the National Research Council of the Philippines; and Professorial Lecture at the National Institute of Geological Sciences of the University of the Philippines. As Philippine Focal Point for the International Decade of Ocean Exploration (IDOE) Programme from 1972 to 1985, Dr. Balce was instrumental in raising Philippine capacities in tectonic analysis and sea-bed exploration. With the assistance of the Japan International Cooperation Agency (JICA), he was also instrumental in setting up, in 1983, a modern petrological laboratory (PETROLAB) at the Mines and Geoscience Bureau.

During 1992-1994, Dr. Balce was engaged in private practice. He was Senior Technical Consultant of Alcorn Petroleum and Minerals Corporation and President of the Asia Geodyne Corporation. Most of his projects during this period were on environmental impact assessment, hydroelectric resources evaluation and dam foundation surveys. He was also Associate Editor of the Journal of Southeast Asian Earth Sciences published by Elsevier.

The academic preparation of Dr. Balce started at the University of the Philippines, where he completed his Bachelor of Science in Geology in 1961. He completed a Master of Science in Economic Geology in 1969 and a Doctor of Science in Economic Geology in 1978, both at the Tokoku University during 3 –year stints as Japanese Ministry of Education Scholar seconded by the Philippine Bureau of Mines and Geosciences. He

completed a Management Development Programme course at the Asian

National Security Administration course at the National Defense College of

Institute of Management in 1979. In 1987, he entered the Master of

the Philippines (NDCP) which he was unable to complete as he was unexpectedly called back to the Mines and Geoscience Bureau to assume

the responsibility of Director of Mines and Geosciences.

AKIRA SHIMIZU

Director, International Division Taiheiyo Coal Mining Co., Ltd

Educational Qualifications: Mining College, Akita University (1972)

Employment History:

1972: Taihciyo Coal Mining Co. Ltd

1987: Manager, Technical Developing Dept.

1991: Manager, Mining Service Divn. 1993: General Manager, Training Center 1994: General Manager, Production Dept

1998: General Manager, Safety & Production Divn., Tokyo

2000: Director, International Divn., Tokyo

HAJIME ENDO

General Manager of Engineering Department Japan Coal Energy Center

Academic Qualifications: B. Eng. in Mining engineering, Hokkaido University, Japan 1970

Employment:

1970	Employed by Taiheiyo Coal Mining Co. Ltd as a mining engineer
1973	Transferred to Taiheyo Engineering Incorporate
1979	System engineer assigned to Sydney office as a technical advisor for longwall equipment and development of a new coal mine

- 1984 Reappointment to Taiheiyo Coal Mining Co Ltd as Manager of Preparation Plant.
- 1991 General Manager of Planning Department
- 1998 Transferred to Japan Coal Energy Center

Present: General Manager of Engineering Department

Principal: Mining, Safety and Preparation

Technical cooperation project of underground mining and preparation

technology with VINACOAL in charge

YOSHITERU NISHIE

Manager/Registered Consulting Engineer International Power Development Office Electric Power Development Co., Ltd

Academic History: B.Eng. Engineering, 1978

Department of Electrical Engineering

School of Science and Engineering, Waseda University

Special Field: Control and Instrument, Thermal Power Plant

Professional Career History:

1978

Operation Section, Takehara Thermal Power Station, Electric Power Development Co. Ltd (EDPC)

Power Plant Operator and Maintenance

1984

Planning Section, Thermal Power Department, EPDC F/S of Coal-Fired Thermal Power Plant Project in Overseas Countries

1985

Construction Section, Thermal Power Department, EPDC Detail Design (Electrical and C/I) of Coal-Fired Thermal Power Plant Project in Overseas Countries.

1986

Resident Engineer, Kuala Lumpur Office, EDPC International Ltd Detail Design and Supervising (Electrical and C/I) of Prot Klang III Coal-Fired Thermal Power Project in Malaysia.

1989

Assistant Manager, Construction Section, Thermal Power Department, EPDC Investigations and Design of Coal-Fired Thermal Power Plant (incl. FBC Boiler)

1993

Assistant General Manager, Tsuing Tao Office, EPDC Design and Construction supervising of Pilot Plant of desulferising Plant

1994

Manager, International Power Development Office, International Activities Department

Procurement of Power Plant from Overseas Country and Promotion of IPP Project (Up to present)

GRAHAM F. TAYLOR

Coordinator Mining Environmental Research CSIRO Environment Projects Office

After graduating from the University of Adelaide, South Australia with a PhD in crystallography - solid state chemistry, joined CSIRO in 1966 to study the formation of boiler deposits from the firing of Australian coals. Within one year, began life-long research as an exploration geochemist, with particular interest in sulfide mineral oxidation, gossan formation and evaluation and secondary dispersion. In this role, have worked throughout Australia and consultancies in Saudi Arabia and Brazil. During this period, have also undertaken research into genesis of base metal deposits and primary mineralogical and geochemical haloes associated with them.

In early 1990's had senior management role as Program Manager, OIC and Acting Chief in Division of Exploration and Mining.

In 1995 joined CSIRO Minesite Rehabilitation Research Program with specific interests in acid mine drainage (AMD), tailings management and minesite rehabilitation, together with supervision of post-graduate students working on environmental management at minesites. Present position is Project Coordinator for Mining Environmental Research within the CSIRO Environmental Projects Office, where multi-disciplinary teams are assembled to address environmental issues in Australia and overseas. Have written in excess of 60 papers and produced over 90 reports to industry.

Have been President of Association of Exploration Geochemists and am presently an Adjunct Professor in two departments of University of Adelaide. Also have coordinating role within two CSIRO minerals sectors and contribute to another on coal, where the group has considerable experience in environmental management. Also a member of the Steering Committee for Environment Australia's Best Practice Environmental Management in Mining booklets, and the Environmental Committee of the South Australian Chamber of Mines and Energy.

DR LUO WEIHONG

Director

Zhejiang Research & Development Center for Clean Coal Technology

Ms Luo Weihong, Ph. D and senior engineer, director of Zhejiang Research & Development Center for Clean Coal Technology, was born in 1965, in Zhejiang Province of P. R. China. She gained doctor's degree in 1992 from Zhejiang University, and employed in Zhejiang Provincial Office for Rural Energy, as well as Zhejiang Provincial Institute for Biogas and Solar Energy from 1987 to 1999 where she focused on working in technology development, dissemination and management for renewable energy. Since the beginning of 2000, She has been working as the director of Zhejiang R& D Center for Clean Coal Technology where she focus on the research work as well as commercial activity for clean coal products and technology.

In these years, She has undertaken three major or key projects from the country and Ministry of Agriculture, as well as the ministry of coal industry, and several provincial projects which lead to more than 20 papers be published, and three of them gained award from the ministry and province. She ever attended and made presentations for five times in international conferences involved in renewable energy and clean coal technology.

Education:

- 1980—1984 Zhejiang University, undergraduate student in the Dept. of Thermal Science
- 1984—1987 Zhejiang University, gained Master degree in the field of Coal Combustion
- 1988—1992 Zhejiang University, gained Doctor degree in the Dept. of Energy Engineering

Profession:

1987—1988 Zheji ang Provincial Institute for Biogas and Solar Energy

1992—1999 Zhejiang Provincial Office for Rural Energy, employed as the director of technology development and dissemination section

2000-- Zhejiang Research and Development Center for Clean Coal Technology, director, focus on the development and market investigation as well as popularization of clean coal products and technology.

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CHARLES J. JOHNSON

Coordinator of Environmental Studies East-West Center, Hawaii

He has a Ph.D. in mineral economics (specialization coal and energy economics) from the Pennsylvania State University (1972); MS degree in geology from the University of California, Riverside (1968).

He is presently the Coordinator of Environmental Studies at the East-West Center in Hawaii, and previously was the Head of the Coal and Environment Project at the Center. He is also an affiliate of the graduate faculty of University of Hawaii.

Major research areas include: (i) economic analyses of technology and fuel options for reducing energy-related pollution in Asia, (ii) promoting regional energy and environmental cooperation and security, and (iii) assessing new energy resource options in Asia, including coalbed methane and methane hydrates.

For the past seven years he has been the advisor to the chairman of the APEC Expert Group on Clean Fossil Energy, and is responsible for the publication and distribution of their conference proceedings and research reports. This APEC Expert Group has a focus on new technology and fuel options to produce energy more efficiently with less detrimental emissions to the environment. The U.S. Department of Energy is a substantial source of annual funding.

Has been a consultant to the Harvard Institute for International Development, Asian Development Bank, World Bank, Asia Foundation, Ford Foundation, Commonwealth Secretariat, United Nations, and numerous governments and private energy companies (including RTZ and BHP).

During the past 28 years he has worked in more than 40 countries, and has made about 100 trips to Asia. He has published approximately 80 articles, mostly on coal and related environmental issues in Asia. He has made seven trips to Vietnam to examine Vietnam energy options. He has had numerous TV interviews, including CNN. He is listed in Who's Who in Finance and Industry. He received the Centennial Fellow award from the Pennsylvania State University in recognition of his accomplishments in the field of mineral economics.

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October 2000

ERIC GARNER

Consultant International Operations Geo-Eng Australia Pty Ltd

Eric Garner is currently Consultant International Operations for Geo-Eng Australia Pty Ltd. Formerly its General Manager International and a Director of its Indonesian subsidiary, PT Geo-Eng Nusantara, he was responsible for all of the company's marketing and operations outside of Australia. He has also, for the past ten years provided independent specialist technical services to the mining industry both in Australia and internationally.

He is a Fellow and Chartered Professional of the Australasian Institute of Mining and Metallurgy. He is currently Deputy Chairman of the Melbourne Branch, and a National Councillor, representing the interests of overseas members. He is an Honours graduate in Civil Engineering from Melbourne University and a prize winner in his MBA course at Monash University. He has spent most of his professional life in the resources industry, with much of this time living and/or working on overseas projects. He is also a Fellow of the Institution of Engineers Australia and a Member of the Institution of Civil Engineers.

He was a Director of Kinhill Engineers Pty Ltd (and of PT Jaya Kinhill Arkonin), with responsibility for International Mining and Mineral Processing marketing and operations, resigning from these positions in1990. He has served as Business Line Manager, Mining (Asia Pacific) for URS Australia Pty Ltd, a company which incorporates Dames and Moore and AGC Woodward Clyde. He managed resources projects in Indonesia, Thailand and India, for both private industry and government clients over an 18-year period. His understanding of activities of Australian operators and of local conditions in each of these countries is extensive.

He was the principal Author of the Chapter 10, Infrastructure Capital in the AuslMM Monograph 20, 'Cost Estimation Handbook for the Australian Mining Industry'.

He served two terms as Chairman of AUSTMINE, the industry organization promoting the export of Australian Mining Services and Equipment. He was on the Steering Committee which established this very successful cooperative export oriented mining industry support group, representing the project management sector on the Executive and later on the Board, for some six years

In June 1994, he was made a Member of the Order of Australia for 'services to the resource development industry and to international trade'.

He spent a number of years in senior management positions with Bechtel Pacific Corporation managing major mineral development projects in Australia and overseas. Earlier Mr. Garner worked with Shell International Petroleum Company, with long term assignments in Europe, West Africa and Indonesia, and experienced life as an a junior engineer in developing countries under conditions where national aspirations were beginning to have significant effects on the working environment.

In recent years he has participated in Australian Government sponsored missions to Pakistan, Bangladesh and South Africa. He is the Project Director for the Australian Mine Safety Training Company Pty Ltd (jointly owned by three Australian companies) providing Training in Mine Safety to Mines Inspectors of the Indian Directorate General of Mine Safety, on an Australian government funded project. He visited Russia and the Independent States and Poland in 1992 and has an appreciation of coal and etalliferous mining operations in those countries. He has been active in mining developments in China, through Sino-Australian Joint Venture operations.

DEEPAK SHARMA

Director of Energy Planning and Policy Program University of Technology, Sydney

Dr. Deepak Sharma is presently the Director of Energy Planning and Policy Program at the University of Technology, Sydney where he teaches, conducts research and consults in areas of energy industry reforms, energy economics, energy modelling and policy analysis. Dr Sharma has more than twenty years of international experience in energy related work, spanning government, private industry and academia. He is a regular participant in national and international energy policy forums.

DR IR. BONI SIAHAAN

Marital Status : Married, 1 child

Office : Directorate of Coal, DGM, ME (Hons)

Jl. Prof. Soepomo, SH 10 Jakarta 12870

Ph : (021) 831 4585-86, 831 1671

Facs : (021) 828 0775 Home : Ph: 809 1338

Education:

1977 : Ir. Tambang, Institute Technology Bandung, Indonesia
 1986 : ME (Hons), University of Wollongong, NSW, Australia

Major in Underground (Coal) Mine Design, Thesis:

"Laboratory Works for Coal Measures".

1990 : PhD, University of Wollongong, NSW, Australia

Major in (Coal Mines) Gas Flow Engineering, Dissertation: "Study of Methane Gas Migration in Coal by Sorption

Tests"

Work Experience:

1979 – 1990 : Inspectorate General of Mines and Energy, Inspector

(Pemeriksa) of Equipment in General Mining, under Inspectorate of Equipment (Inspektur Perlengkapan),

since 1981 up to 1984

1991 – 1997 : Directorate of Coal, Directorate General of Mines, Head of

Section of Production and Marketing Analysis, Sub Directorate of Promotion of Coal Mining Enterprise

1994 – 1996 : Head of Project of Coal Sumatra Feasibility Study for

Potential Coal Areas, Transportation Study (CTA 231 with

Belgium)

1997 - : Head of Sub Directorate Coal Utilization, Directorate of

Coal. DGM

1994 – 1997 : Editor in Chief/Columnist, "Warta PERHAPI"

(PERHAPI's monthly magazine)

Membership:

- Persatuan Insinyur Indonesia (PII, The Association of Indonesia Engineers)
- PERHAPI (Persatuan Ahli Pertambangan Indonesia, The Assocation of Indonesian Mining Professional)
- The Aus IMM.
- First Chairman of PPI (Indonesian Student Association), Wollongong University, 1989

Activities and Publications:

1. Limited Circulation:

1993 : Proposal and Terms of Reference on Coal Transportation
1994 : Proposal and Terms of Reference on National Coal Policy

- Seminar/Conferences: About 13 papers on Coal at International Seminars/Workshop within 1993 – 1999, among other are: 1999: 5th APEC Coal Flow Seminar at Yokohama, Japan February 3 – 6. Paper presented: "Coal Development and it's Challenges in Indonesia". 1999: JCOAL International Seminar in Tokyo "Global Warming Issue and Indonesian Coal Policy", September 6-8.
- 3. 1994-95: Closely engaged in drafting Coal Contract of Work.

Courses:

Among other, Diklat SPAMA (Middle Management Course), July - October 1997

Jakarta, November, 2000

Dr. Ir. Boni Siahaan

RAYMOND C. PILCHER

President Raven Ridge Resources

Raymond C. Pilcher has worked more than 24 years in the petroleum as well as mining-related industries. As President of Raven Ridge Resources, Incorporated, his experience includes exploration geology, domestic and international project management, economic evaluation, and corporate planning. He is an active participant in all research and development projects undertaken by Raven Ridge.

Mr. Pilcher manages projects for government and private sector clients looking to develop coalbed methane and other energy resources. He has conducted or participated in assessment, exploration, and exploitation of coalbed and coal mine gas resources in the United States, Western and Eastern Europe, the former Soviet Union, and Asia.

Mr. Pilcher graduated from the University of Texas at Austin in 1975 with a B.S. in Geology. He has completed the Global Leadership Program at Columbia Graduate School of Business and courses in Economic Evaluation and Investment Decision Methods, and Managing Risks and Strategic Decisions in Petroleum Exploration and Production, both at the Colorado School of Mines.